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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/994,850      | 11/28/2001  | Kozo Akiyoshi        | 13831               | 8454             |

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EXAMINER

SHIBRU, HELEN

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/994,850 | <b>Applicant(s)</b><br>AKIYOSHI ET AL. |  |
|                              | <b>Examiner</b><br>HELEN SHIBRU      | <b>Art Unit</b><br>2621                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 2-5 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-5 and 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed 06/22/2006, have been entered and made of record. Claims 1, 6, and 13-22 are cancelled and claims 2-5 and 7-12 are pending.

***Allowable Subject Matter***

2. The indicated allowability of claims 4 and 7 is withdrawn in view of the newly discovered reference(s) to Shinagawa et al. (US Pat. No. 6,137,910) and Jung et al. (US Pat. No. 5,978,030). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 103***

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-5 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards (US Pat. No. 5,343, 241) in view of Shinagawa (US Pat. No. 6,137,910).

Claims 4 and 7 will be discussed first.

Regarding claims 4 and 7, Richards discloses an image-effect apparatus, comprising:  
an intermediate image generator which acquires a first image, a second image and a corresponding point file for the first image and the second image and generates an intermediate image between the first image and the second image (see abstract and claim 1); and  
speed controller which controls an operation of said intermediate image generator with respect to a speed at which the intermediate image is generated (see col. 4 lines 37-67, col. 5 lines 1-30 and col. 6 lines 22-40).

Claims 4 and 7 differ from Richards in that the claims further require the corresponding point file describes lattice points of a mesh taken on the first image and the positional relation of points in the second image which correspond to the lattice points, and matching processor generates the corresponding point file in a manner such that a destination polygon in the second image corresponds to a source polygon of a mesh defined on the first image.

In the same field of endeavor Shinagawa discloses the corresponding point file describes lattice points of a mesh taken on the first image and the positional relation of points in the second image which correspond to the lattice points (see figure 3, Points A, B, C, D of source image, and points A', B', C', D' of "Destination image" and col. 17 lines 37-48), and matching processor generates the corresponding point file in a manner such that a destination polygon in the second image corresponds to a source polygon of a mesh defined on the first image (see fig. 3 Inherited

Quadrilateral (A',B',C',D'), Quadrilateral of source image, and see col. 10 line 64-col. 11 line 4).

Therefore in light of the teaching in Shinagawa it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Richards in order to compute mapping between the source and the destination image.

Regarding claim 2, Richards discloses a speed specifying unit which receives from a user a desired speed, wherein said speed controller controls said intermediate image generator according to the desired speed (see claim 12).

Regarding claim 3, Richards discloses intermediate image comprises a plurality of intermediate images and said speed controller controls the number of intermediate images generated by said intermediate image generator (see col. 7 lines 9-36 and claim 1).

Regarding claim 5, Richards discloses a display unit which displays the first image, the intermediate image, and the second image as a moving picture (see fig. 2, and fig. 4 monitor 36 in Richards and figure 1, 18-21 in Shinagawa).

Regarding claim 8, Richards discloses processor performs a pixel-by-pixel matching computation based on correspondence between a critical point detected through two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image (see col. 3 line 42-col. 4 line 25 and col. 6 lines 1-21 in Richards, and col. 6 line 16-col. 7 line 12 and col. 9 line 65-col. 10 line 18 in Shinagawa).

Regarding claim 9, Richards discloses matching processor initially multiresolutionalizes the first image and the second image using the critical points then performs the pixel-by-pixel matching computation between related multiresolution levels while also inheriting a result of

Art Unit: 2621

pixel-by-pixel matching computation at a different multiresolution level in order to acquire a pixel-by-pixel correspondence relation at a finest resolution level at a final stage (see col. 5 and 6 and claims 4-9 In Richards and col. 6 line 16-col. 7 line 12 and col. 9 line 65-col. 10 line 18 in Shinagawa).

Regarding claim 10, Richards discloses a communication unit which outputs the corresponding point file to an external unit (see fig. 4).

Claims 11 and 12 are rejected for the same reason as discussed in claim 3 above.

6. Claims 2-5 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards (US Pat. No. 5,343, 241) in view of Jung et al. (US Pat. No. 5,978,030).

Regarding claims 4 and 7, Richards discloses an image-effect apparatus, comprising:  
an intermediate image generator which acquires a first image, a second image and a corresponding point file for the first image and the second image and generates an intermediate image between the first image and the second image (see abstract and claim 1); and  
speed controller which controls an operation of said intermediate image generator with respect to a speed at which the intermediate image is generated (see col. 4 lines 37-67, col. 5 lines 1-30 and col. 6 lines 22-40).

Claims 4 and 7 differ from Richards in that the claims further require the corresponding point file describes lattice points of a mesh taken on the first image and the positional relation of points in the second image which correspond to the lattice points, and matching processor generates the corresponding point file in a manner such that a destination polygon in the second image corresponds to a source polygon of a mesh defined on the first image.

In the same field of endeavor Jung discloses the corresponding point file describes lattice points of a mesh taken on the first image and the positional relation of points in the second image which correspond to the lattice points, and matching processor generates the corresponding point file in a manner such that a destination polygon in the second image corresponds to a source polygon of a mesh defined on the first image (see col. 10 lines 50-65, col. 12 line 4-col. 14 line 13).

Therefore in light of the teaching in Jung it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Richards in order to encode a video signal based on motion estimation.

Regarding claim 2, Richards discloses a speed specifying unit which receives from a user a desired speed, wherein said speed controller controls said intermediate image generator according to the desired speed (see claim 12 in Richards).

Regarding claim 3, Richards discloses intermediate image comprises a plurality of intermediate images and said speed controller controls the number of intermediate images generated by said intermediate image generator (see col. 7 lines 9-36 and claim 1 in Richards).

Regarding claim 5, Richards discloses a display unit which displays the first image, the intermediate image, and the second image as a moving picture (see fig. 2, and fig. 4 monitor 36 in Richards and figures 5 and 6 in Jung).

Regarding claim 8, Richards discloses processor performs a pixel-by-pixel matching computation based on correspondence between a critical point detected through two-dimensional search on the first image and a critical point detected through a two-dimensional search on the second image (see col. 3 line 42-col. 4 line 25 and col. 6 lines 1-21 in Richards).

Regarding claim 9, Richards discloses matching processor initially multiresolutionalizes the first image and the second image using the critical points then performs the pixel-by-pixel matching computation between related multiresolution levels while also inheriting a result of pixel-by-pixel matching computation at a different multiresolution level in order to acquire a pixel-by-pixel correspondence relation at a finest resolution level at a final stage (see col. 5 and 6 and claims 4-9 In Richards).

Regarding claim 10, Richards discloses a communication unit which outputs the corresponding point file to an external unit (see fig. 4).

Claims 11 and 12 are rejected for the same reason as discussed in claim 3 above.

### *Conclusion*

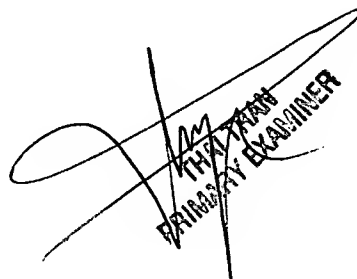
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN SHIBRU whose telephone number is (571) 272-7329. The examiner can normally be reached on M-F, 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THAI Q. TRAN can be reached on (571) 272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helen Shibru  
July 10, 2006

  
PRIMARY EXAMINER